



CIRENCESTER SCIENCE AND TECHNOLOGY SOCIETY

2007 May - edition Number 7

Notes from the Editors desk

Perhaps a few of our members will have been thinking I had forgotten them after the rush of activity before Christmas. The truth is that the committee have been putting a lot of thought into how best to communicate Society news, announcements, comment, reports and items of general interest. Members will be aware that the cost of printing handling and posting hardcopy is a very significant item for the Society's accounts. With this in mind it has been decided that hardcopy newsletters will now be distributed at the monthly meetings of the Society. Naturally the website will continue to have a downloadable version on line for those who use a computer and can print copies for themselves.

Your committee has also been studying the benefits of registering the Society as a Charity. If this is successful it will benefit the Society in many ways, but principally financially as this will place us in a more favourable tax position. I understand this may need small changes to the constitution of the Society but we will find out in due course.

Our inaugural Patricia Clarke lecture which was open to the public was a great success. Lord May who kindly agreed to talk with us chose 'Hard Choices for 'Tomorrows World' which focussed upon the increasing levels of carbon dioxide being generated and its social consequences. We were honoured to have Professor Patricia Clarke in attendance to hear Lord May.

Since our last issue some of our members have been able to make visits to a couple of places of technical and scientific interest and I have included a brief note on what we were able to see. Many of our members are retired folk and as one of those I am only too aware that one loses touch with what is going on in this increasingly technical world. These visits are very refreshing bringing to us a small understanding of what is being discovered or developed in the laboratories and industry today. Note that we have a visit planned to the Royal Society Summer Science 07 show. There are details in the text.

Bunny

SCIENCE AND TECHNOLOGY SOCIETY COMMITTEE

Chairman:	Dr. Geoff Richards
Vice Chairman:	Prof. Peter Stoward
Treasurer:	Tony Gordon
Programme Organiser:	Dr. Roger Wheeler
Minute Secretary:	Mrs Kathleen Wells
Membership Secretary:	Mrs Joan R Cooper
Committee members:	Dr Andrea Tales
	Prof. Roy Postlethwaite
Newsletter Editor:	Bunny Lees-Smith

Society Meeting times and dates

13th June at 7.30pm at the RAC.

Dr Eleanor Highwood of the

Department of Meteorology, University of Reading will give a talk entitled

‘From Dust till Dawn: Exploring Saharan Dust Storms and their influence on Climate Change’

Other Happenings - Watch the CSTS website for information and details of next seasons programme when they are announced.

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Happy Birthday to our Society



The Society celebrated its 10th Birthday with a lunch at the Royal Agricultural College. The photograph above includes some of our founder members who were able to attend.

Left to right in the picture we have: Prof. Peter Stoward FRSE, Prof Roy Postlethwaite FRCPATH, Dr Eric Gibson CBE FRSC, Prof Pat Clarke FRS DSc, Dr Geoff Richards OBE, Dr Doug Gunary MBE, Dr Fred James MD. Dr Bernard Tinker OBE, Dr Theo Stening FRSC.

The College maintained its reputation for a fine lunch which was much enjoyed by the forty members and guests. It was an occasion that we only rarely get in our Society where members were able to reminisce and to socialise with others of like mind.

A few notes on past events

This years programme has been perhaps one of the most varied and intensive yet. In particular the Patricia Clarke public lecture that Lord May presented to us at the end of January was a highlight of the year. However one must not overlook the quality of other presentations we have heard, which range through medical science, nanotechnology, power generation, and mathematics. All of these are reported in our website and form an interesting archive of our activities.

Apart from lectures we have had a most interesting debate where the motion was ‘This House supports Euthanasia’. This proved to be a most interesting evening where members could be involved. The result was a spirited discussion from both sides of the argument.

The committee would like to promote similar evenings and would welcome suggestions from members as to the subjects we might discuss.

Visits made by the Society so far this year.

The BMW MINI assembly line at Cowley

The plant is very new and is a good demonstration of what an automated plant can achieve. The visit really consisted of two parts first of which was the assembly of the car body from preformed panels and parts. This process is entirely managed through computer controlled robots.



Cars are only assembled when the Company has a specific order for that car. Some 1¼ million options are available for the MINI, all these options are incorporated on the production line. The result is that on the line a sports version of say bright red with cd player and GPS can be followed immediately with a family salon hatch back in black with no hesitation. Even the wide range of engine variations and transmissions is coped with.

The first impression is of flailing robotic arms picking up, placing and welding pieces of all sorts and in any order (although of course it is computer controlled). It is by any standard a staggering sight particularly when there are few if any humans to intervene in the process. The flying sparks from the welding are a hazard and one has to wear protective goggles.

The second part of the assembly we were allowed to see was the final assembly of the car and its initial testing. What is significant here is the way all the options are presented to the operator in the right order to coincide with the production line itself. Obviously in this area there are less robots but they are still very essential in the assembly as a whole. Particular robotic aspects were the introduction of the engine unit to the body and also the insertion of the windscreens and windows.

A good demonstration of the success of the assembly line was the fallout of non starters at the end of the line. It was noted that very very few fell into this category.

We are limited by the hosts on these occasions as to how many folk can go. In this case we were overwhelmed by the interest and so several people could not go. The committee could run this again say in a couple of years. Please let us know of your interest.

A visit to the Central Laser Facility at the Rutherford Appleton laboratory Culham



This was a visit to a series of laboratories in the complex. The Vulcan laser above was a centre piece to the visit. It is huge and can deliver 2.6kj in nano second pulses which are driven from an equally huge capacitor bank. The target area can be focussed down to 10micron diameter and this will give an intensity of 10^{20} Wcm^{-2} .

The research facility is a partnership between the UK and some overseas scientific communities. It has many different kinds of lasers being used in many different ways and we had time only to see a few. However what we did see ranged from work on very high intensity light with matter, microscopy for multi-photon research spectroscopy, and microfabrication of gratings, and thin film deposition.



Finally we saw some of the mechanical construction work going on for an international experiment to try to measure the effects felt on earth when the sun has a magnetic storm. This was a triple pendulum supported laser which will be mounted at one end of a 3Km long tube. The far end of this tube consists of again a 3 pendulum mounted mirror which reflects the laser beam back to its source. A deflection of the beam will be measured and indicate a shock or other effect. The mind boggles at the thought of such a project but it is well underway.

Bunny

Chairman's End of Session Programme Review June 2007

Dear Member
The 2006-07 Session

We are nearing the end of the Society's 10th Session, which has been very successful. The Society is based in Cirencester but continues to attract members from within a radius of 15 miles. It is still growing slowly, currently with 115 paid up members and 5 honorary members. Numbers attending our lectures are now averaging about 75.

Highlights of the session must be

(1) the outstanding public lecture dedicated to Professor Patricia Clarke FRS by Professor Lord May OM FRS on "Hard Choices for Tomorrow's World" given to a packed audience at the Sundial Theatre in January.

(2) The 10th Anniversary Luncheon when 7 founder members were feted at the Royal Agricultural College in April. I would like to thank Tony Gordon for organising this most enjoyable event.

(3) The Tree of Life Exhibition at the Corinium Museum (Autumn 2006) which was jointly sponsored by the Society with the Museum. It was well received and thought provoking. The supporting lectures on the broad theme of the heart by Dr Geoffrey Farrer – Brown, who organised the Exhibition, by Professor Hugh Watkins John Radcliffe Hospital, Oxford and Taliesin Golesworthy LDT Ltd were of the highest quality.

During the session the only change to the Committee was that Peter Tanswell had to step down as Vice-Chair because of severe illness. We thank him for all his work for the Society, particularly in organising the last two public lectures.

We welcome Peter Stoward as the new Vice-Chair.

During the year, visits have been enjoyed to the Diagnostic Imaging Centre of the Gloucestershire Royal Hospital, the Central Laser Facility of the Rutherford Appleton Laboratory and the BMW Cowley Mini Works. It is hoped to organise a return visit to the Royal Society Summer 2007 Exhibition.

The Newsletter and the Website are now well established and greatly help communication with members. Thanks are due to the Editor Bunny Lees-Smith and to Tony Gordon for looking after the website.

During the session it was realised that our finances were under strain and at a Special General Meeting in May it was agreed to increase the subscription to £15 (a proposal to increase it to £20 was not accepted), to increase the charge for visitors to lectures to £3 and to make visits self-funding. These increases which apply for the next session, are the first since the Society was established.

I am sure that we have in place an exciting and diverse programme for the next session. The Public Lecture will be on 10th October at the Sundial Theatre to be given by Dr Andrew Ives C Eng Past President of the Institution of Mechanical Engineers. It will be on the role of technology in curbing the effects of global warming.

Subscriptions for the 2007-08 session should be paid to the Membership Secretary at the June lecture or sent by post to Joan Cooper, The Cottage, Pitchcombe, Stroud GL6 6LW (cheques payable to the Society). To those members not on E-mail, hard copies of this Review will be available at the June meeting. Those not attending will be sent it by post, together with the 2007-08 programme,

requesting payment of the subscription. Similarly any member not renewing the subscription by the end of July will be sent the new programme with a request to pay. All members are asked to inform Joan Cooper of changes in address (including phone numbers and E-mail addresses).

The first lecture of our new session will be on 12th September at the Ashcroft Centre, Ashcroft Road, Cirencester. Professor Innes Cuthill Bristol University will speak on “The Art of Concealment, Prey Camouflage and Predator Vision”.

The Society's Finances - Note by the Chairman

It was realised during this session that the Society's funds were coming under increasing pressure because costs were increasing for many reasons including hire of meeting rooms, subsidy for visits, and postage for the Newsletter. The Committee reviewed the position and the Treasurer developed a package of proposals which were endorsed by the Committee. Accordingly I called a Special General Meeting to consider the package, which was held on May 9th after the normal lecture.

The Committee's proposals were to seek approval for the following changes:

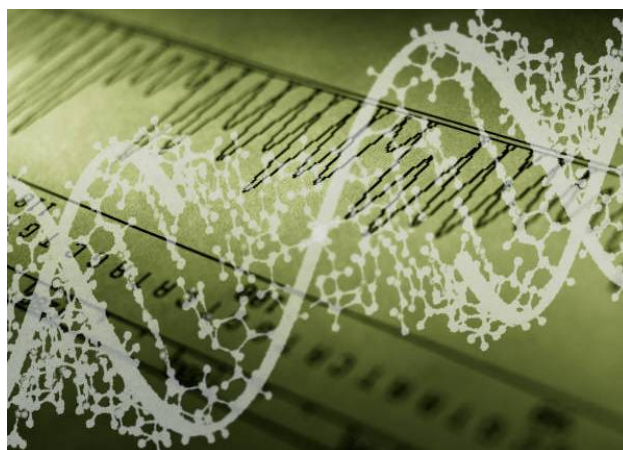
- (i) to increase the annual subscription from £10 to £15;
- (ii) to increase the fee paid by visitors to lectures from £2 to £3;
- (iii) to agree that all visits should be self-financing;
- (iv) to agree that measures be taken to reduce the cost of circulating the Newsletter.

John James proposed that the subscription be increased to £20, arguing that the Society should build up its reserves more quickly, in case lack of funds should stop a new major initiative. The Chairman and the Treasurer said that the Society's finances had improved compared with the conservative figures circulated to members. The Committee believed that a £15 subscription would suffice for 2007-08. The James amendment was defeated by a large majority and the Committee package was accepted unanimously.

It is hoped that the Society can obtain charitable status, which should produce an extra £3-400 from tax relief. This will require a revised constitution for the Society, which will need to be approved by members----hopefully during 2007.

This is the first time in the Society's history, that the subscription has been increased. The new rates come into effect for the 2007-08 session.

Geoff Richards



New members

We wish to extend a warm welcome to the following members who have joined the Society since Christmas. The Committee trust you will enjoy our company and our planned programme. If you have suggestions and ideas for lectures or events please do not hesitate to let us know.

John McWilliam, Derek Pollock, Brian Witcombe, Andy Lichmowski, and David Thornley.

Forthcoming visits being organised by the Society.

ROYAL SOCIETY SUMMER SCIENCE EXHIBITION – 2007.

A coach will leave Cirencester at 8.30am on Wednesday, 4th July 2007. The cost will be £20 per person. For more details visit the Society website and download the booking form. Contact Roy Postlethwaite, 6 Rendcomb Drive, Cirencester, Glos, GL7 1YN if you are not on email.

OPEN DAY AT THE DIAMOND SYNCHROTON.

The Diamond Light Source celebrates being the largest scientific facility to be built in the UK for over 40 years. The Society has been allocated some 12 tickets for this event. If you would like to go please mail to pjstoward@waitrose.com or telephone 01285 850508. The date is Saturday 14th July.

Other events of note

CHELTENHAM SCIENCE FESTIVAL

This will be held from the 6th to the 10th of June this year. It is always worth a visit. For full information about the events and venues visit the web site.

http://www.cheltenhamfestivals.com/whats_on/science_festival.html or call the box office on 01242 227979.